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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/399,109	09/20/1999	ZION HADAD		1872

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ISRAEL

EXAMINER	
DUONG, DUC T	

ART UNIT	PAPER NUMBER
2663	7

DATE MAILED: 11/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/399,109	HADAD, ZION	
	Examiner	Art Unit	
	Duc T. Duong	2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 August 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *41-60* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *41-43,45,48,51-53,55 and 58* is/are rejected.

7)☒ Claim(s) *44,46,47,49,50,54,56,57,59 and 60* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 March 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. In response to the amendment filed on August 14, 2003, claims 21-40 are canceled and claims 41-60 are pending.

Specification

2. The amendment filed August 14, 2003 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: On pages 2-4 starting with "undesired frequency deviations...to their momentary needs".

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 41, 45, and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frodigh et al (U.S. Patent 5,726,978) in view of Marchok et al (U.S. Patent 5,995,483).

Regarding to claim 41, Frodigh discloses a unidirectional or broadcasting communication system (Fig. 1) using OFDM transmission from a base station to subscriber units, means for achieving a bi-directional channel comprising transmitting

means 300 (Fig. 3) in the subscriber units for a transmitting signals that are orthogonal (Fig. 2 col. 7 lines 51-63, noted the M subcarriers are orthogonal to each others) to signals transmitted from the base station and are also orthogonal to signals from other subscriber units; and receiving means 330 in the base station for receiving and processing together signals from a plurality of subscriber units (Fig. 3 col. 8 lines 1-6).

Frodigh fails to teach for the subscriber units further include AFC means at the base station for detecting deviations in a frequency of the signals transmitted from each subscriber unit and for sending correction signals indicative of the deviations, to each subscriber unit and a control means in each subscriber unit for correcting the transmit frequency responsive to the correction signals received from the base, so that the signals received at the base from each subscriber have a frequency corrected for that deviation.

However, Marchok discloses an OFDM digital communication system comprising a transmitter 97 (base station) with a voltage controlled oscillator 290 (AFC means) to compensates for frequency offset (detect frequency deviations) and for sending the correct frequency signal to subscriber unit (Fig. 7 col. 13 lines 55-67 and col. 14 lines 1-13) and a receivers 150 (subscriber unit) with a voltage controlled oscillator 240 (control means) to correct the frequency offset of signal received from the transmitter 97 (col. 8 lines 1-27), so that the signals received at the base have a frequency corrected for that deviation (col. 12 lines 33-45).

Thus, it would have been obvious to one of ordinary skilled in the art, at the time of the invention, to include the adapting means as taught by Marchok in Fodigh's system to perform desired synchronization and carrier recovery.

Regarding to claim 45, Frodigh discloses all the limitation with respect to claim 41, except for the base station transmits a pilot signal and wherein each subscriber unit include means for correcting a frequency of signals transmitted from that subscriber unit responsive to a frequency of the pilot signal.

However, Marchok discloses an OFDM digital communication system with a transmitter 97 (base station) transmitting a pilot signal to a receiver 150 (subscriber unit) and wherein the receiver includes a voltage controlled oscillator 240 (correcting means) to adjust for the frequency offset of signals transmitted (Fig. 3 col. 5 lines 21-45).

Thus, it would have been obvious to one of ordinary skilled in the art, at the time of the invention, to include the adapting means as taught by Marchok in Fodigh's system to perform desired synchronization and carrier recovery.

Regarding to claim 48, Frodigh discloses an OFDM system includes coding (Fig. 3B) and decoding means (Fig. 3 C) with Fast Fourier transform means 306 and 336 (col. 8 lines 15-48).

5. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frodigh and Marchok, further in view of Gudmundson et al (U.S. Patent 5,790,516).

Regarding to claim 42, Frodigh and Marchok discloses all the limitation with respect to claim 21, except for the base station and the subscriber units operate according to the DVB-T standard.

However, Gudmundson discloses an orthogonal frequency division multiplexed system OFDM capable operating in a broadcasting (DVB-T) environment (col. 2 lines 53-55).

Thus, it would have been obvious to one of ordinary skilled in the art, at the time of the invention, to include the OFDM system as taught by Gudmundson in Frodigh and Marchok's apparatus for multiaccess telecommunication applications.

6. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frodigh and Marchok, further in view of Kaiser et al (U.S. Patent 6,188,717 B1).

Regarding to claim 43, Frodigh and Marchok discloses all the limitation with respect to claim 41, except for the signals transmitted from the base station include a guard time interval, and wherein the signals transmitted to the base station are synchronous with the guard time interval.

However, Kaiser discloses an OFDM system comprising a device 16 for transmitting a signal with a guard interval, wherein the guard interval is use for synchronization between subscriber stations and base station (Fig. 5 col. 6 lines 40-59).

Thus, it would have been obvious to one of ordinary skilled in the art, at the time of the invention, to included the guard interval for synchronization as taught by Kaiser in Frodigh and Marchok's system to reduced intersymbol interference.

7. Claims 51 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frodigh in view of Wahlqvist (U.S. Patent 6,088,398).

Regarding to claim 51, Frodigh discloses a unidirectional or broadcasting communication system (Fig. 1) using OFDM transmission from a base station to

subscriber units, means for achieving a bi-directional channel comprising transmitting means 300 (Fig. 3) in the subscriber units for a transmission of signals that are orthogonal (Fig. 2 col. 7 lines 51-63, noted the M subcarriers are orthogonal to each others) to the signals transmitted from the base station and are also orthogonal to signals from other subscriber units; receiving means 330 in the base station for reception of said orthogonal signals (Fig. 3 col. 8 lines 1-6), and an OFDM decoding means in the base station comprising an FFT processor 336 operating on an input channel (Fig. 3 col. 8 lines 42-45).

Frodigh fails to teach for a transversal filter means that reduces a pulse widening because of a gap interval in the transmitter.

However, Wahlquist discloses an OFDM system comprising a pulse shaping filter (transversal filter) for reducing pulse widening (col. 4 lines 5-10).

Thus, it would have been obvious to one of ordinary skilled in the art, at the time of the invention, to include the pulse shaping filter as taught by Wahlqvist for reduction of the guard bands and suppression of inter symbol interference (ISI) between OFDM symbols.

Regarding to claim 58, Frodigh discloses an OFDM system includes coding (Fig. 3B) and decoding means (Fig. 3 C) with Fast Fourier transform means 306 and 336 (col. 8 lines 15-48).

8. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frodigh and Wahlqvist, further in view of Gudmundson.

Regarding to claim 52, Frodigh and Wahlqvist discloses all the limitation with respect to claim 51, except for the base station and the subscriber units operate according to the DVB-T standard.

However, Gudmundson discloses an orthogonal frequency division multiplexed system OFDM capable operating in a broadcasting (DVB-T) environment (col. 2 lines 53-55).

Thus, it would have been obvious to one of ordinary skilled in the art, at the time of the invention, to include the OFDM system as taught by Gudmundson in Frodigh and Wahlqvist's apparatus with the motivation to reduced intersymbol interference between data symbols.

9. Claim 55 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frodigh and Wahlqvist, further in view of Marchok.

Regarding to claim 55, Frodigh and Wahlqvist discloses all the limitation with respect to claim 41, except for the base station transmits a pilot signal and wherein each subscriber unit include means for correcting a frequency of signals transmitted from that subscriber unit responsive to a frequency of the pilot signal.

However, Marchok discloses an OFDM digital communication system with a transmitter 97 (base station) transmitting a pilot signal to a receiver 150 (subscriber unit) and wherein the receiver includes a voltage controlled oscillator 240 (correcting means) to adjust for the frequency offset of signals transmitted (Fig. 3 col. 5 lines 21-45).

Thus, it would have been obvious to one of ordinary skilled in the art, at the time of the invention, to include the adapting means as taught by Marchok in Fodigh and Wahlqvist 's system to perform desired synchronization and carrier recovery.

10. Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frodigh and Wahlqvist, further in view of Kaiser et al (U.S. Patent 6,188,717 B1).

Regarding to claim 53, Frodigh and Wahlqvist discloses all the limitation with respect to claim 41, except for the signals transmitted from the base station include a guard time interval, and wherein the signals transmitted to the base station are synchronous with the guard time interval.

However, Kaiser discloses an OFDM system comprising a device 16 for transmitting a signal with a guard interval, wherein the guard interval is use for synchronization between subscriber stations and base station (Fig. 5 col. 6 lines 40-59).

Thus, it would have been obvious to one of ordinary skilled in the art, at the time of the invention, to included the guard interval for synchronization as taught by Kaiser in Frodigh and Wahlqvist's system to reduced intersymbol interference.

Allowable Subject Matter

11. Claims 44, 46, 47, 49, 50, 54, 56, 57, 59, and 60 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

12. Applicant's arguments filed August 18, 2003 have been fully considered but they are not persuasive. Regarding to applicant's argument on page 8, Frodigh fails to teach orthogonality in the uplink with respect to the transmitting and receiving means is directed to previously cited portion (Fig. 2 col. 7 lines 51-63). Herein, Frodigh discloses the uplink and downlink uses different set of subcarriers. In OFDM, these subcarriers are orthogonal to one another by definition. Furthermore, col. 2 lines 39-41, Frodigh discloses for the orthogonality of the subcarriers. Regarding to applicant's argument on page 8, Marchok fails to teach each subscriber units to corrects its transmission is directed to Fig. 5 col. 8 lines 16-27. Herein, Marchok discloses the voltage controlled oscillator 240 at the subscriber unit 150 to correct frequency deviations of the signal received from the base station. With respect to applicant's point that Marchok's system is complex and expensive, it appears that the unity or diversity of parts would depend more upon the choice of the manufacture, and convenience and availability of the machines and tools necessary to construct the system, that any inventive concept. See *In re Larson*, 144 USPQ 347 (CCPA 1965) and *In re Lockhart*, 90 USPQ 214 (CCPA 1951). Regarding to applicant's argument on page 9 with respect to claim 42, Gudmundson fails to teach for the system operate according to a DVB-T standard is directed to col. 2 lines 51-67. Herein, Gudmundson discloses the system is applicable to broadcast system such as HDTV in downlink and uplink transmission.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

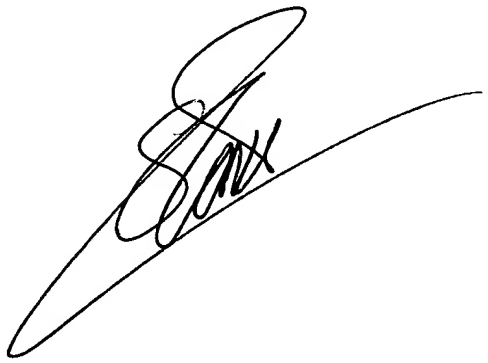
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc T. Duong whose telephone number is 703-605-5146. The examiner can normally be reached on M-Th (8:30 AM-5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau T. Nguyen can be reached on 703-308-5340. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9600.

DD
November 3, 2003



STEVEN H.D NGUYEN
PRIMARY EXAMINER